

AMENDMENTS TO THE CLAIMS

The listing of the claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A microfabricated Bragg channel waveguide of semiconductor-compatible materials, comprising:

a closed trench having a hollow core embedded in a substrate for the propagation of an optical wave therein, and

a continuous multilayer dielectric cladding ~~disposed~~deposited conformably on the inner wall of the hollow coretrench, the cladding comprising at least one alternating layer of a first dielectric material having a high index of refraction and a second dielectric material having a lower index of refraction, such that the thicknesses of the alternating layers satisfy the condition for minimum radiation loss at the wavelength of the optical wave.

Claim 2 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the semiconductor-compatible materials comprise silicon-based materials.

Claim 3 (original): The microfabricated Bragg channel waveguide of claim 2, wherein the silicon-based materials comprise single crystal silicon, polysilicon, silicon dioxide, silicon nitride, silicon oxynitride, or silicon carbide.

Claim 4 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the semiconductor-compatible materials comprise group II-VI or group III-V compound-based materials.

Claim 5 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the hollow core has a cross-section of dimension less than 1 millimeter.

Claim 6 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the hollow core has a cross-section of dimension less than 200 micrometers.

Claim 7 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the thickness of the first cladding layer is less than 1 micrometer.

Claim 8 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the thickness of the first cladding layer is less than 0.1 micrometers.

Claim 9 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the at least one alternating layer comprises less than five alternating layer periods.

Claim 10 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the hollow core is filled with a material having an index of refraction less than the index of refraction of the first dielectric material.

Claim 11 (original): The microfabricated Bragg channel waveguide of claim 1, wherein the hollow core is filled with a material having an index of refraction greater than the index of refraction of the first dielectric material.

Claim 12 (currently amended): A microfabricated Bragg fiber of semiconductor-compatible materials, comprising:

a tube having a hollow core for the propagation of an optical wave therein, and
a continuous multilayer dielectric cladding disposed deposited conformably on at least one ~~the inner wall of the hollow core tube~~, the cladding comprising at least one alternating layer of a first dielectric material having a high index of refraction and a second dielectric material having a lower index of refraction, such that the thicknesses of the alternating layers satisfy the condition for minimum radiation loss at the wavelength of the optical wave.

Claim 13 (original): The microfabricated Bragg fiber of claim 12, wherein the semiconductor-compatible based materials comprise silicon-based materials.

Claim 14 (original): The microfabricated Bragg fiber of claim 13, wherein the silicon-based materials comprise single crystal silicon, polysilicon, silicon dioxide, silicon nitride, silicon oxynitride, or silicon carbide.

Claim 15 (original): The microfabricated Bragg fiber of claim 12, wherein the semiconductor-compatible materials comprise group II-VI or group III-V compound-based materials.

Claim 16 (original): The microfabricated Bragg fiber of claim 12, wherein the tube has wall thickness less than 1 micrometer.

Claim 17 (original): The microfabricated Bragg fiber of claim 12, wherein the hollow core has a cross-section of dimension less than 1 millimeter.

Claim 18 (original): The microfabricated Bragg fiber of claim 12, wherein the hollow core has a cross-section of dimension less than 200 micrometers.

Claim 19 (original): The microfabricated Bragg fiber of claim 12, wherein the thickness of the first cladding layer is less than 1 micrometer.

Claim 20 (original): The microfabricated Bragg fiber of claim 12, wherein the thickness of the first cladding layer is less than 0.1 micrometers.

Claim 21 (original): The microfabricated Bragg fiber of claim 12, wherein the at least one alternating layer comprises less than five alternating layer periods.

Claim 22 (original): The microfabricated Bragg fiber of claim 12, wherein the hollow core is filled with a material having an index of refraction less than the index of refraction of the first dielectric material.

Claim 23 (original): The microfabricated Bragg fiber of claim 12, wherein the hollow core is filled with a material having an index of refraction greater than the index of refraction of the first dielectric material.

Claims 24 - 43 (canceled).

Claim 44 (new): The microfabricated Bragg channel waveguide of claim 1, wherein the optical wave comprises linear polarized light.

Claim 45 (new): The microfabricated Bragg channel waveguide of claim 44, wherein the first cladding layer of the multilayer dielectric cladding is slightly below a half-wave thickness.

Claim 46 (new): The microfabricated Bragg fiber of claim 12, wherein the optical wave comprises linear polarized light.

Claim 47 (new): The microfabricated Bragg fiber of claim 46, wherein the first cladding layer of the multilayer dielectric cladding is slightly below a half-wave thickness.